

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
4 November 2004 (04.11.2004)

PCT

(10) International Publication Number
WO 2004/095529 A3

(51) International Patent Classification⁷: **C23C 16/00**,
C23F 1/00, H01L 21/306, B44C 1/22, C03C 15/00, C23F
1/00

(21) International Application Number:
PCT/US2004/006076

(22) International Filing Date: 17 March 2004 (17.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/456,229 21 March 2003 (21.03.2003) US

(71) Applicant (for all designated States except US): **TOKYO ELECTRON LIMITED [JP/JP]**; TBS Broadcast Center, 3-6, Akasaka 5-chome, Minato-ku, Tokyo 107-8481 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HATAMURA, Yasunori [JP/US]**; Apt. 28, 3 Beverly Commons Drive, Beverly, MA 01915 (US). **HINATA, Kunihiro [JP/JP]**; 412 Ninomiya, Misaka-cho, Higashiyatsushiro-gun, Yamanashi, 406-0807 (JP).

(74) Agent: **MAIER, Gregory, J.**; Oblon, Spivak, McClelland, Maier & Neustadt, P.C., 1940 Duke Street, Alexandria, VA 22314 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

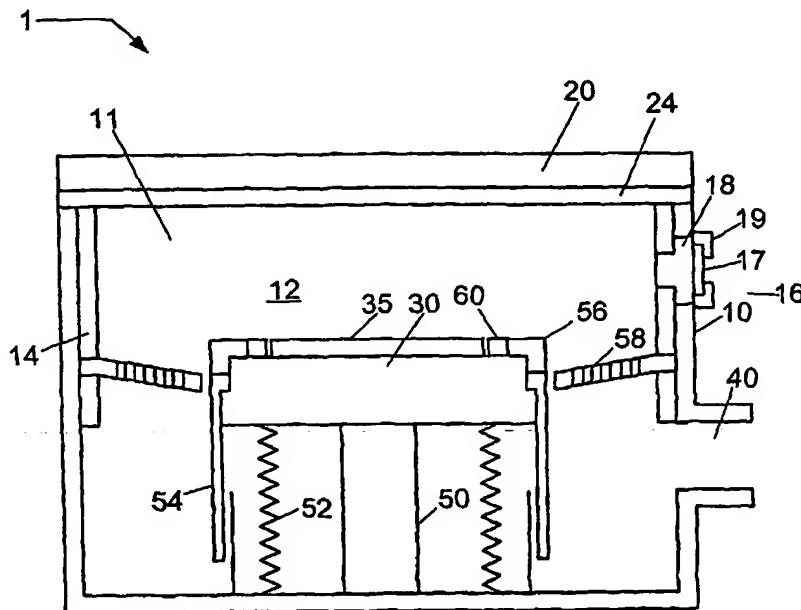
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
21 April 2005

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR REDUCING SUBSTRATE BACKSIDE DEPOSITION DURING PROCESSING



(57) Abstract: A focus ring (60) configured to be coupled to a substrate holder (10) comprises a focus ring (60) and a secondary focus ring (56) coupled to the focus ring (60), wherein the secondary focus ring (56) is configured to reduce the deposition of process residue on a backside surface of the substrate (35).

WO 2004/095529 A3



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

International application No.

A. CLASSIFICATION OF SUBJECT MATTER

US CL : 118/728; 156/345.51, 345.1; 216/58

B. FIELDS SEARCHED

U.S. : 118/728; 156/345.51, 345.1; 216/58

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Examiner Assisted Search Tool (EAST)

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	X US 6,284,093 B1 (KE et al.) 04 September 2001 (04.09.2001); column 4, line 42 -	1, 2, 4-12, 14-20
---	column 5, line 25	-----
Y		3, 13
Y	US 5,556,500 A (HASEGAWA et al.) 17 September 1996, column 4; lines 56-67	3, 13

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

• **Special categories of cited documents:**

"A" document defining the general state of the art which is not considered to be of particular relevance

^a "E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

“T”

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

“Y”

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

“&”

document member of the same patent family

Date of the actual completion of the international search

26 January 2005 (26.01.2005)

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Date of mailing of the international search report

14 FEB 2005

Authorized officer

Rudy Zervigon

Telephone No. 703.308.0664